CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS
EXAMINATION FOR THE AWARD OF BACHELOR OF SCIENCE IN AGRIBUSINESS MANAGEMENT

AGEC 313: ECONOMETRICS
STREAMS: BSc AGBM Y3S2 ODEL **TIME:2 HOURS**
DAY/DATE: THURSDAY 07/08/2025 **2.30P.M. –4.30 P.M**

INSTRUCTIONS:

- Answer all questions in SECTION A and any three in SECTION B.
- Do not write on the question paper.

SECTION A: All questions are Compulsory (25 Marks)

QUESTION ONE (25 MARKS)

a) Discuss three importance of econometrics. *(3 Marks)*

b) Distinguish between econometric model and mathematical model? *(4 Marks)*

c) Describe the procedure for hypothesis testing in econometrics. *(5 Marks)*

d) Given the following data:

X	40	50	38	60	65	50	35
Y	38	60	55	70	60	48	30

Calculate:

i. Regression coefficients of Y on X *(3 Marks)*

ii. Coefficient of determination (r2) *(3 Marks)*

iii. Regression equation *(2 Marks)*

iv. Value of Y when X=55 *(2 Marks)*

v. Adjusted r2. *(3 Marks)*

SECTION B

QUESTION TWO (15 MARKS)

a) What will be the interpretation of $B1$ in the following equations.

i. Y= $B0 + B1X + u$ *(2 Marks)*

ii. Y = $B0 + B1 \log(X) + u$ *(2 Marks)*

iii. Log (Y) =$B0$ + B1X+u *(2Marks)*

iv. Log (Y) =$B0 + B1 \log(X) + u$ *(2 Marks)*

b) Discuss the two types of regression analysis *(3 Marks)*

c) Distinguish between endogenous and exogenous variables. *(4 Marks)*

QUESTION THREE (15 MARKS)

a) Discuss four types of data. *(8 Marks)*

b) Give reasons for including an error term in an econometric model specification. *(3 Marks)*

c) Explain the

d)

e) statistical properties of OLs estimator. *(4 Marks)*

QUESTION FOUR (15 MARKS)

a) Clearly differentiate between correlation and regression analysis *(5 Marks)*

b) Briefly discuss any two causes and consequences of:

i. Heteroscedasticity *(5 Marks)*

ii. Autocorrelation *(5 Marks)*

QUESTION FIVE (15 MARKS)

Consider the following model

$Y = \alpha + \beta 1\ X1 + \beta 2\ X2 + \mu i$

Where:

Y= Expenditure

X1=Income

X2= Wealth

It is also known that low incomes are associated with low wealth and high incomes with abundant wealth.

i. What problem are you likely to encounter in the estimation of this model? *(1 Mark)*

ii. If the problem is severe, what are the likely consequences? *(6 Marks)*

iii. How can you go about remedying the problem? *(8 Marks)*
